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(FILE 'HOME' ENTERED AT 11:28:11 ON 17 JUL 2002)

FILE 'MEDLINE' ENTERED AT 11:28:44 ON 17 JUL 2002

L1 6 S LYSOSTAPHIN (2A) RESISTANT  
L2 13 S (LYSOSTAPHIN (2A) (RESIST? OR INSENSITIVE)) NOT L1

FILE 'CAPLUS' ENTERED AT 11:35:50 ON 17 JUL 2002

L3 21 S L2 NOT L1

FILE 'MEDLINE, CAPLUS' ENTERED AT 11:36:15 ON 17 JUL 2002

L4 23 DUPLICATE REMOVE L2 L3 (11 DUPLICATES REMOVED)

=> d bib,abs 1-23

L4 ANSWER 1 OF 23 CAPLUS COPYRIGHT 2002 ACS

AN 2001:828921 CAPLUS

DN 135:352833

TI Topical lysostaphin therapy for Staphylococcus ocular infections

IN O'callaghan, Richard J.

PA Board of Supervisors of Louisiana State University and Agricultural and Mechanical College, USA

SO U.S., 6 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

|    | PATENT NO.   | KIND | DATE     | APPLICATION NO. | DATE     |
|----|--|------|----------|-----------------|----------|
| PI | US 6315996   | B1   | 20011113 | US 1999-289684  | 19990409 |
| AB | A method has been discovered for using lysostaphin as an effective antibiotic for topical treatment of Staphylococcus corneal infections (keratitis). Lysostaphin applied topically to the cornea by eye drops killed bacteria within the cornea; lysostaphin reduced the no. of bacteria from approx. 10,000,000 viable bacteria colony forming units ("CFU") in the untreated eye to essentially no viable bacteria in the treated eyes. Treatment by lysostaphin was more potent than any of the smaller antibiotics that have been previously tested (e.g., tetracyclines, erythromycin, cephalosporins, vancomycin, aminoglycosides, or fluoroquinolones). Moreover, topical application of lysostaphin was effective against the highly antibiotic-resistant Staphylococcus strains. |      |          |                 |          |

RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 23 MEDLINE

AN 2001572049 MEDLINE

DN 21536883 PubMed ID: 11679550

TI Development of vancomycin and **lysostaphin resistance** in a methicillin-resistant Staphylococcus aureus isolate.

AU Boyle-Vavra S; Carey R B; Daum R S

CS Department of Pediatrics, University of Chicago, Chicago, IL, USA..  
sboyleva@midway.uchicago.edu

NC R01 AI 40481-01 BM (NIAID)

R03 AI 44999-02 (NIAID)

SO JOURNAL OF ANTIMICROBIAL CHEMOTHERAPY, (2001 Nov) 48 (5) 617-25.

Journal code: 7513617. ISSN: 0305-7453.

CY England: United Kingdom

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200202

ED Entered STN: 20011029

Last Updated on STN: 20020221

Entered Medline: 20020220

AB Glycopeptide resistance in *Staphylococcus aureus* is poorly understood. The diversity of change documented in cell walls of clinical glycopeptide-intermediate *S. aureus* (GISA) isolates is evidence that a single genetic or biochemical change cannot account for resistance in all isolates described to date. Therefore, identification of new GISA clinical isolates provides an opportunity to gain insight into the range of adaptive strategies employed by staphylococci to survive in the presence of glycopeptides. In April 1999, a GISA isolate was obtained from the blood of a 63-year-old dialysis patient in Illinois. This isolate was one of six clonally identical MRSA isolates (A-F) serially obtained from the blood of this patient who was receiving vancomycin therapy. All isolates were resistant to oxacillin (MIC > 256 mg/L). The initial isolate had an MIC of vancomycin of 1 mg/L. However, the presence of a subpopulation that could grow in the presence of 5 mg/L of vancomycin indicated that this isolate was predisposed to the acquisition of the GISA phenotype (MIC of vancomycin 10-12 mg/L), which occurred 13 days later, associated with an increased MIC of the endopeptidase lysostaphin and slightly increased cell wall thickness. The first and last isolates in the series, A and F, resisted killing when incubated in vancomycin 2 mg/L, resisted autolysis when incubated in Triton X-100 and had a decreased expression of a c. 116 kDa autolytic band, properties that were different from glycopeptide-susceptible control isolates. **Lysostaphin resistance** was not accompanied by alterations in the peptidoglycan pentaglycine cross-bridge or a decrease in oxacillin MIC. These data, when taken together with the demonstration of increased cross-linking in isolate F compared with isolate A, demonstrate that vancomycin resistance in these isolates probably occurred by a mechanism different from that of other GISA isolates described to date.

L4 ANSWER 3 OF 23 CAPLUS COPYRIGHT 2002 ACS

AN 2001:37556 CAPLUS

DN 134:246913

TI Lysostaphin expression in mammary glands confers protection against staphylococcal infection in transgenic mice

AU Kerr, David E.; Plaut, Karen; Bramley, A. John; Williamson, Christine M.; Lax, Alistair J.; Moore, Karen; Wells, Kevin D.; Wall, Robert J.

CS Department of Animal Sciences, University of Vermont, Burlington, VT, 05405, USA

SO Nature Biotechnology (2001), 19(1), 66-70  
CODEN: NABIF9; ISSN: 1087-0156

PB Nature America Inc.

DT Journal

LA English

AB Infection of the mammary gland, in addn. to causing animal distress, is a major economic burden of the dairy industry. *Staphylococcus aureus* is the major contagious mastitis pathogen, accounting for approx. 15-30% of infections, and has proved difficult to control using std. management practices. As a first step toward enhancing mastitis resistance of dairy animals, we report the generation of transgenic mice that secrete a potent anti-staphylococcal protein into milk. The protein, lysostaphin, is a peptidoglycan hydrolase normally produced by *Staphylococcus simulans*. When the native form is secreted by transfected eukaryotic cells it becomes glycosylated and inactive. However, removal of two glycosylation motifs through engineering asparagine to glutamine codon substitutions enables secretion of Gln125,232-lysostaphin, a bioactive variant. Three lines of transgenic mice, in which the 5'-flanking region of the ovine  $\beta$ -lactoglobulin gene directed the secretion of Gln125,232-lysostaphin into milk, exhibit substantial resistance to an intramammary challenge of 10<sup>4</sup> colony-forming units (c.f.u.) of *S. aureus*, with the highest expressing line being completely resistant. Milk protein content and profiles of transgenic and nontransgenic mice are similar. These results clearly demonstrate the potential of genetic engineering to combat the most prevalent disease of dairy cattle.

RE.CNT 34      THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD  
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4    ANSWER 4 OF 23    CAPLUS    COPYRIGHT 2002 ACS  
AN    2000:161096    CAPLUS  
DN    132:175811  
TI    A method using lysostaphin for the treatment of staphylococcal disease  
IN    Climo, Michael M.; Archer, Gordon L.; Goldstein, Beth P.  
PA    Ambi Inc., USA  
SO    PCT Int. Appl., 25 pp.  
      CODEN: PIXXD2  
DT    Patent  
LA    English  
FAN.CNT 2

|      | PATENT NO.   | KIND   | DATE     | APPLICATION NO. | DATE     |
|------|--|--|----------|-----------------|----------|
| PI   | WO 2000012049  | A2   | 20000309 | WO 1999-US20396 | 19990827 |
|      | WO 2000012049  | A3   | 20000525 |                 |          |
|      | W:   | AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM |          |                 |          |
|      | RW:  | GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG   |          |                 |          |
|      | US 6028051   | A  | 20000222 | US 1998-140732  | 19980827 |
|      | ZA 9905444   | A  | 20000710 | ZA 1999-5444    | 19990825 |
|      | AU 9958111   | A1   | 20000321 | AU 1999-58111   | 19990827 |
|      | EP 1107722   | A2   | 20010620 | EP 1999-945525  | 19990827 |
|      | R:   | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO   |          |                 |          |
|      | NO 2001000953  | A  | 20010321 | NO 2001-953     | 20010226 |
| PRAI | US 1998-140732   | A  | 19980827 |                 |          |
|      | US 1997-53470P   | P  | 19970723 |                 |          |
|      | WO 1999-US20396  | W  | 19990827 |                 |          |
| AB   | Lysostaphin is an effective antibiotic in the treatment of staphylococcal infection. Large doses of lysostaphin or lysostaphin analogs are effective in short course, or even one-dose administration, in treating and eradicating staphylococcal infections, including those resistant to conventional antibiotics. |  |          |                 |          |

L4    ANSWER 5 OF 23      MEDLINE      DUPLICATE 1  
AN    1999177558      MEDLINE  
DN    99177558    PubMed ID: 10077832  
TI    Identification of three additional femAB-like open reading frames in Staphylococcus aureus.  
AU    Tschierske M; Mori C; Rohrer S; Ehlert K; Shaw K J; Berger-Bachi B  
CS    Institute of Medical Microbiology, University of Zurich, Switzerland.  
SO    FEMS MICROBIOLOGY LETTERS, (1999 Feb 15) 171 (2) 97-102.  
      Journal code: 7705721. ISSN: 0378-1097.  
CY    Netherlands  
DT    Journal; Article; (JOURNAL ARTICLE)  
LA    English  
FS    Priority Journals  
OS    GENBANK-AF106849; GENBANK-AF106850; GENBANK-AF106851  
EM    199903  
ED    Entered STN: 19990413  
      Last Updated on STN: 19990413  
      Entered Medline: 19990329  
AB    Three new proteins, FmhA, FmhB and FmhC, with significant identities to FemA and FemB were identified in the Staphylococcus aureus (ATCC 55748) genome database. They were mapped to the SmaI-C, SmaI-H and SmaI-A

fragments of the *S. aureus* 8325 chromosome, respectively. Whereas insertional inactivation of *fmhA* and *fmhC* had no effects on growth, antibiotic susceptibility, **lysostaphin resistance**, or peptidoglycan composition of the strains, *fmhB* could not be inactivated, strongly suggesting that *fmhB* may be an essential gene. As deduced from the functions of *FemA* and *FemB* which are involved in the synthesis of the peptidoglycan pentaglycine interpeptide, *FmhB* may be a candidate for the postulated *FemX* thought to add the first glycine to the nascent interpeptide.

L4 ANSWER 6 OF 23 MEDLINE DUPLICATE 2  
 AN 1998295009 MEDLINE  
 DN 98295009 PubMed ID: 9631548  
 TI Zoocin A immunity factor: a *femA*-like gene found in a group C streptococcus.  
 AU Beatson S A; Sloan G L; Simmonds R S  
 CS Department of Microbiology, University of Otago, Dunedin, New Zealand.  
 SO FEMS MICROBIOLOGY LETTERS, (1998 Jun 1) 163 (1) 73-7.  
 Journal code: 7705721. ISSN: 0378-1097.  
 CY Netherlands  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 OS GENBANK-U50357  
 EM 199807  
 ED Entered STN: 19980716  
 Last Updated on STN: 19980716  
 Entered Medline: 19980709  
 AB A 6.8-kb fragment of *Streptococcus equi* subsp. *zooepidemicus* 4881 DNA containing the zoocin A gene (*zooA*) was cloned in *Escherichia coli* and sequenced. We have identified a gene we call zoocin A immunity factor (*zif*), which protects the producer cell from the otherwise lethal action of its own product. Transformation of *Streptococcus gordonii* DL1 with *zooA* and *zif* changed its phenotypic character from a non-zoocin A producing-zoocin A sensitive cell to a zoocin A producing-zoocin A resistant cell. *zif* has sequence homology to *femA* (factor essential for methicillin **resistance**) and *lif* (**lysostaphin** immunity factor). No differences were observed in amino acid or amino sugar compositions of peptidoglycan purified from zoocin A sensitive vs. zoocin A immune cells.

L4 ANSWER 7 OF 23 MEDLINE DUPLICATE 3  
 AN 1999132637 MEDLINE  
 DN 99132637 PubMed ID: 9931440  
 TI Identification and molecular characterization of a gene homologous to *epr* (endopeptidase resistance gene) in *Staphylococcus aureus*.  
 AU Sugai M; Fujiwara T; Komatsuzawa H; Suginaka H  
 CS Department of Microbiology, Hiroshima University School of Dentistry, Hiroshima 734-8553, Japan. sugai@ipc.hiroshima-u.ac.jp  
 SO GENE, (1998 Dec 11) 224 (1-2) 67-75.  
 Journal code: 7706761. ISSN: 0378-1119.  
 CY Netherlands  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 OS GENBANK-AB015195  
 EM 199902  
 ED Entered STN: 19990301  
 Last Updated on STN: 20000303  
 Entered Medline: 19990218  
 AB Certain *Staphylococci* possess a gene called *epr* or *lif* that renders the cells resistant to lysis by glycylglycine endopeptidase. The resistance is conferred by modifying the amino acid composition of interpeptide chains in cell-wall peptidoglycan by increasing serine content and decreasing

glycine content. A gene homologous to epr/lif was cloned from *S. aureus* RN450 genomic libraries and designated eprh. eprh was found to localize 27bp downstream of a novel cell-wall hydrolase gene lytN, which is in the same orientation with eprh. By analogy with epr/lif, eprh is suggested to be involved in the transfer of certain amino acids, possibly serine or amino acids other than glycine, to interpeptide chains of cell-wall peptidoglycan. Unlike epr/lif, overexpression of eprh in *S. aureus* did not result in an increased **resistance to lysostaphin**. Insertional inactivation of eprh or lytN by Campbell-type integration did not affect the susceptibility of the cells to lysostaphin, either. These results suggest that eprh and lytN are not essential genes for *S. aureus* growth. The physiological function of eprh remains unknown.

L4 ANSWER 8 OF 23 CAPLUS COPYRIGHT 2002 ACS

AN 1998:346426 CAPLUS

DN 129:25648

TI Epr-specified **lysostaphin** endopeptidase **resistance**

AU Dehart, Heather Morton Posey

CS Univ. of Alabama, Tuscaloosa, AL, USA

SO (1997) 66 pp. Avail.: UMI, Order No. DA9821529

From: Diss. Abstr. Int., B 1998, 59(1), 63

DT Dissertation

LA English

AB Unavailable

L4 ANSWER 9 OF 23 MEDLINE

DUPLICATE 4

AN 1998053874 MEDLINE

DN 98053874 PubMed ID: 9393725

TI Specificities of FemA and FemB for different glycine residues: FemB cannot substitute for FemA in staphylococcal peptidoglycan pentaglycine side chain formation.

AU Ehlert K; Schroder W; Labischinski H

CS PH-Research Antiinfectives I, Bayer AG, Wuppertal, Germany.

SO JOURNAL OF BACTERIOLOGY, (1997 Dec) 179 (23) 7573-6.

Journal code: 2985120R. ISSN: 0021-9193.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199712

ED Entered STN: 19980116

Last Updated on STN: 19980116

Entered Medline: 19971230

AB The femAB operon codes for two nearly identical approximately 50-kDa proteins involved in the formation of the staphylococcal pentaglycine interpeptide bridge. Sequencing and analysis of the femA region of mutants isolated by chemical mutagenesis and selection for **lysostaphin resistance** revealed point mutations leading to the expression of truncated FemA proteins. These femA mutants, although still producing an intact FemB, exhibited a phenotype identical as that described for femAB double mutants. Thus, FemA seems to be essential for the addition of glycine residues 2 and 3 only, whereas FemB is involved in the attachment of exclusively glycine residues 4 and 5. Although FemB has 39% identity with FemA, it cannot substitute for FemA. The FemA and FemB proteins seem to be highly specific in regard to the position of the glycine residues that they attach.

L4 ANSWER 10 OF 23 MEDLINE

DUPLICATE 5

AN 97352690 MEDLINE

DN 97352690 PubMed ID: 9209049

TI epr, which encodes glycyglycine endopeptidase resistance, is homologous to femAB and affects serine content of peptidoglycan cross bridges in *Staphylococcus capitis* and *Staphylococcus aureus*.

AU Sugai M; Fujiwara T; Ohta K; Komatsuzawa H; Ohara M; Suginaka H

CS Department of Microbiology, Hiroshima University School of Dentistry,  
Minami-ku, Japan.. sugai@ipc.hiroshima-u.ac.jp

SO JOURNAL OF BACTERIOLOGY, (1997 Jul) 179 (13) 4311-8.  
Journal code: 2985120R. ISSN: 0021-9193.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

OS GENBANK-AB000222

EM 199708

ED Entered STN: 19970902  
Last Updated on STN: 20000303  
Entered Medline: 19970819

AB Staphylococcus capitis EPK1 produces a glycyglycine endopeptidase, ALE-1 (M. Sugai, T. Fujiwara, T. Akiyama, M. Ohara, H. Komatsuzawa, S. Inoue, and H. Suginaka, J. Bacteriol. 179:1193-1202, 1997), which hydrolyzes interpeptide pentaglycine chains of cell wall peptidoglycan of *S. aureus*. Characterizations of the enzyme activity and cloning of ale-1 revealed that ALE-1 is very similar to prollysostaphin produced by *S. simulans* bv. staphylolyticus. Strain EPK1 is resistant to lysis by ALE-1 and by lysostaphin. A gene that renders the cells resistant to glycyglycine endopeptidase (epr) was found 322 bp upstream of and in the opposite orientation to ale-1. The deduced amino acid sequence of epr showed similarities to FemA and FemB, which have been characterized as factors essential for methicillin resistance of *S. aureus*. Inactivation of either femA or femB causes decreased resistance to methicillin, increased **resistance to lysostaphin**, and decreased glycine content in the interpeptide chains of peptidoglycan. Therefore, femAB is suggested to be involved in the addition of glycine to pentapeptide peptidoglycan precursor. *S. aureus* with epr on a multicopy plasmid had phenotypes similar to those of femAB mutants except that it did not alter resistance level to methicillin. These results suggest that epr and femAB belong to the protein family involved in adding amino acids to the pentapeptide peptidoglycan precursor and that epr is involved in the addition of serine to the pentapeptide.

L4 ANSWER 11 OF 23 MEDLINE DUPLICATE 6

AN 97400268 MEDLINE

DN 97400268 PubMed ID: 9257762

TI Increased production of penicillin-binding protein 2, increased detection of other penicillin-binding proteins, and decreased coagulase activity associated with glycopeptide resistance in *Staphylococcus aureus*.

AU Moreira B; Boyle-Vavra S; deJonge B L; Daum R S

CS Department of Pediatrics, The University of Chicago, Illinois 60637, USA.

SO ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, (1997 Aug) 41 (8) 1788-93.  
Journal code: 0315061. ISSN: 0066-4804.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199709

ED Entered STN: 19971008  
Last Updated on STN: 19980206  
Entered Medline: 19970925

AB The mechanism of glycopeptide resistance in the genus *Staphylococcus* is unknown. Since these antimicrobial compounds act by binding the peptidoglycan precursor terminus, the target of transglycosylase and transpeptidase enzymes, it was hypothesized that resistance might be mediated in *Staphylococcus aureus* by increased production or activity of these enzymes, commonly called penicillin-binding proteins (PBPs). To evaluate this possibility, glycopeptide-resistant mutants were prepared by passage of several clinical isolates of this species in nutrient broth containing successively increasing concentrations of the glycopeptide vancomycin or teicoplanin. Decreased coagulase activity and increased

resistance to lysostaphin were uniformly present in the vancomycin-resistant mutants. Peptidoglycan cross-linking increased in one resistant isolate and decreased in two resistant isolates. The amounts of radioactive penicillin that bound to each PBP in susceptible and resistant strains were compared; PBP2 production was also evaluated by Western blotting. Increased penicillin labeling and production of PBP2 were found in all resistant derivatives selected by either vancomycin or teicoplanin. Moreover, the increase in PBP2 penicillin labeling occurred early in a series of vancomycin-selected derivatives and was strongly correlated ( $r > 0.9$ ) with the increase in vancomycin and teicoplanin MIC. An increase in penicillin labeling also occurred, variably, in PBP1, PBP3, and/or PBP4. These data demonstrate a strong correlation between resistance to glycopeptides and increased PBP activity and/or production in *S. aureus*. Such an increase could allow PBPs to better compete with glycopeptides for the peptidoglycan precursor.

L4 ANSWER 12 OF 23 MEDLINE DUPLICATE 7  
 AN 97417793 MEDLINE  
 DN 97417793 PubMed ID: 9271851  
 TI Lif, the lysostaphin immunity factor, complements FemB in staphylococcal peptidoglycan interpeptide bridge formation.  
 AU Tschierske M; Ehlert K; Strandén A M; Berger-Bachi B  
 CS Institute of Medical Microbiology, University of Zurich, Switzerland.  
 SO FEMS MICROBIOLOGY LETTERS, (1997 Aug 15) 153 (2) 261-4.  
 Journal code: 7705721. ISSN: 0378-1097.  
 CY Netherlands  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 199709  
 ED Entered STN: 19971008  
 Last Updated on STN: 20000303  
 Entered Medline: 19970924  
 AB The formation of the Staphylococcus aureus peptidoglycan pentaglycine interpeptide chain needs FemA and FemB for the incorporation of glycines Gly2-Gly3, and Gly4-Gly5, respectively. The lysostaphin immunity factor Lif was able to complement FemB, as could be shown by serine incorporation and by an increase in **lysostaphin resistance** in the wild-type as well as in a femB mutant. However, Lif could not substitute for FemA in femA or in femAB-null mutants. Methicillin resistance, which is dependent on functional FemA and FemB, was not complemented by Lif, suggesting that serine-substituted side chains are a lesser substrate for penicillin-binding protein PBP2' in methicillin resistance.

L4 ANSWER 13 OF 23 MEDLINE DUPLICATE 8  
 AN 97136597 MEDLINE  
 DN 97136597 PubMed ID: 8981974  
 TI Cell wall monoglycine cross-bridges and methicillin hypersusceptibility in a femAB null mutant of methicillin-resistant Staphylococcus aureus.  
 AU Strandén A M; Ehlert K; Labischinski H; Berger-Bachi B  
 CS Institute of Medical Microbiology, University of Zurich, Switzerland.  
 SO JOURNAL OF BACTERIOLOGY, (1997 Jan) 179 (1) 9-16.  
 Journal code: 2985120R. ISSN: 0021-9193.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 199702  
 ED Entered STN: 19970219  
 Last Updated on STN: 20000303  
 Entered Medline: 19970206  
 AB The femAB operon is involved in the formation of the characteristic pentaglycine side chain of the staphylococcal peptidoglycan. Allele replacement of the femAB operon with the tetracycline resistance

determinant tetK in a methicillin-resistant *Staphylococcus aureus* strain resulted in impaired growth, methicillin hypersusceptibility, and **lysostaphin resistance**. The usual pentaglycine cross-bridges were replaced by monoglycine bridges exclusively, and cross-linking of the peptidoglycan strands was drastically reduced. Complementation of the femAB null mutant by either femA or femB resulted in the extension of the cross-bridges to a triglycine or a pentaglycine, respectively. This finding suggests that FemA is responsible for the formation of glycines 2 and 3, and FemB is responsible for formation of glycines 4 and 5, of the pentaglycine side chain of the peptidoglycan precursor. Moreover, it can be deduced that addition of the first glycine must occur by a femAB-independent mechanism.

L4 ANSWER 14 OF 23 MEDLINE DUPLICATE 9  
 AN 97302473 MEDLINE  
 DN 97302473 PubMed ID: 9158720  
 TI Staphylococcal peptidoglycan interpeptide bridge biosynthesis: a novel antistaphylococcal target?  
 AU Kopp U; Roos M; Wecke J; Labischinski H  
 CS Bayer AG, Pharma Research Antiinfectives I, Wuppertal, Germany.  
 SO MICROBIAL DRUG RESISTANCE, (1996 Spring) 2 (1) 29-41.  
 Journal code: 9508567. ISSN: 1076-6294.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 199706  
 ED Entered STN: 19970630  
 Last Updated on STN: 19970630  
 Entered Medline: 19970619  
 AB In staphylococci, crosslinking of the peptide moiety of peptidoglycan is mediated via an additional spacer, the interpeptide bridge, consisting of five glycine residues. The femAB operon, coding for two approximately 50-kDa proteins is known to be involved in pentaglycine bridge formation. Using chemical mutagenesis of the beta-lactam-resistant strain BB270 and genetic, biochemical, and biophysical characterization of mutants selected for loss of beta-lactam **resistance** and reduced **lysostaphin** sensitivity it is shown that peptide bridge formation proceeds via three intermediate bridge lengths (cell wall peptides with no, one, three, and five glycine units). To proceed from one intermediate to the next, three genes appear necessary: femX, femA, and femB. The drastic loss of beta-lactam resistance after inactivation of FemA or partial impairment of FemX even beyond the level of the sensitive wild-type strains renders these proteins attractive antistaphylococcal targets.

L4 ANSWER 15 OF 23 CAPLUS COPYRIGHT 2002 ACS  
 AN 1995:665834 CAPLUS  
 TI The **lysostaphin** endopeptidase **resistance** gene (epr) specifies modification of peptidoglycan cross bridges in *Staphylococcus simulans* and *Staphylococcus aureus*  
 AU DeHart, Heather Posey; Heath, Harry E.; Heath, Lucie S.; LeBlanc, Paul A.; Sloan, Gary L.  
 SO Appl. Environ. Microbiol. (1995), 61(7), 2811  
 CODEN: AEMIDF; ISSN: 0099-2240  
 DT Journal; Errata  
 LA English  
 AB Unavailable

L4 ANSWER 16 OF 23 MEDLINE DUPLICATE 10  
 AN 95266829 MEDLINE  
 DN 95266829 PubMed ID: 7747966  
 TI The **lysostaphin** endopeptidase **resistance** gene (epr) specifies modification of peptidoglycan cross bridges in *Staphylococcus*



simulans and *Staphylococcus aureus*.

CM Erratum in: Appl Environ Microbiol 1995 Jul;61(7):2811  
AU DeHart H P; Heath H E; Heath L S; LeBlanc P A; Sloan G L  
CS Department of Biological Sciences, University of Alabama, Tuscaloosa  
35487, USA.  
SO APPLIED AND ENVIRONMENTAL MICROBIOLOGY, (1995 Apr) 61 (4) 1475-9.  
Journal code: 7605801. ISSN: 0099-2240.  
CY United States  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 199506  
ED Entered STN: 19950621  
Last Updated on STN: 20000303  
Entered Medline: 19950612  
AB *Staphylococcus simulans* biovar *staphylolyticus* produces an extracellular  
glycylglycine endopeptidase (lysostaphin) that lyses other staphylococci  
by hydrolyzing the cross bridges in their cell wall peptidoglycans. The  
genes for endopeptidase (end) and endopeptidase resistance (epr) reside on  
plasmid pACK1. An 8.4-kb fragment containing end was cloned into shuttle  
vector pL150 and was then introduced into *Staphylococcus aureus* RN4220.  
The recombinant *S. aureus* cells produced endopeptidase and were resistant  
to lysis by the enzyme, which indicated that the cloned fragment also  
contained epr. Treatments to remove accessory wall polymers (proteins,  
teichoic acids, and lipoteichoic acids) did not change the endopeptidase  
sensitivity of walls from strains of *S. simulans* biovar *staphylolyticus* or  
of *S. aureus* with and without epr. Immunological analyses of various wall  
fractions showed that there were epitopes associated with endopeptidase  
resistance and that these epitopes were found only on the peptidoglycans  
of epr+ strains of both species. Treatment of purified peptidoglycans with  
endopeptidase confirmed that resistance or susceptibility of both species  
was a property of the peptidoglycan itself. A comparison of the chemical  
compositions of these peptidoglycans revealed that cross bridges in the  
epr+ cells contained more serine and fewer glycine residues than those of  
cells without epr. The presence of the 8.4-kb fragment from pACK1 also  
increased the susceptibility of both species to methicillin.

L4 ANSWER 17 OF 23 CAPLUS COPYRIGHT 2002 ACS  
AN 1991:486327 CAPLUS  
DN 115:86327  
TI femA, which encodes a factor essential for expression of methicillin  
resistance, affects glycine content of peptidoglycan in  
methicillin-resistant and methicillin-susceptible *Staphylococcus aureus*  
strains  
AU Maidhof, Heinrich; Reinicke, Bernhard; Bluemel, Peter; Berger-Baechi,  
Brigitte; Labischinski, Harald  
CS Robert Koch-Inst., Fed. Health Off., Berlin, D-1000/65, Fed. Rep. Ger.  
SO J. Bacteriol. (1991), 173(11), 3507-13  
CODEN: JOBAAY; ISSN: 0021-9193  
DT Journal  
LA English  
AB femA is a chromosomally encoded factor, occurring naturally in *S. aureus*,  
which is essentially for the expression of high-level methicillin  
resistance in this organism. The prodn. of a low-affinity  
penicillin-binding protein PBP2a or PBP2' which is intimately involved  
with methicillin resistance in *S. aureus*, is not influenced by femA. To  
elucidate a possible physiol. function of the 48-kDa protein encoded by  
femA, several related methicillin-resistant, methicillin-susceptible, and  
Tn551 insertionally inactivated femA mutants were analyzed for possible  
changes in cell wall structure and metab. Independent of the presence of  
mec, the methicillin-resistance determinant, all femA mutants had a  
reduced peptidoglycan (PG) glycine content (up to 60% in the molar ratio  
of glycine/glutamic acid) compared to that of related femA+ parent  
strains. Addnl. effects of femA inactivation and the subsequent decrease

in PG-assocd. glycine were (1) reduced digestion of PG by recombinant lysostaphin, (2) unaltered digestion of PG by Chalaropsis B-muramidase, (3) reduced cell wall turnover, (4) reduced whole-cell autolysis, and (5) increased sensitivity towards B-lactam antibiotics. Also, the PG-assocd. glycine content of a femA::Tn551 methicillin-susceptible strain was restored concomitantly with the methicillin resistance to a level almost equal to that of its femA+ methicillin-resistant parent strain by introduction of plasmid pBBB31, encoding femA.

L4 ANSWER 18 OF 23 MEDLINE DUPLICATE 11  
 AN 89273565 MEDLINE  
 DN 89273565 PubMed ID: 2730641  
 TI Plasmid-encoded **lysostaphin** endopeptidase **resistance**  
 of Staphylococcus simulans biovar staphylolyticus.  
 AU Heath H E; Heath L S; Nitterauer J D; Rose K E; Sloan G L  
 CS Department of Microbiology, University of Alabama, Tuscaloosa 35487.  
 SO BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, (1989 May 15) 160 (3)  
 1106-9.  
 Journal code: 0372516. ISSN: 0006-291X.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 198907  
 ED Entered STN: 19900309  
 Last Updated on STN: 20000303  
 Entered Medline: 19890710  
 AB Staphylococcus simulans biovar staphylolyticus, the lysostaphin-producing  
 organism, secretes a staphylolytic endopeptidase (EC 3.4.99.17) that is  
 encoded on plasmid pACK1. Susceptibility of pACK1-cured strains to lysis  
 by endopeptidase established that resistance to this enzyme is not an  
 inherent property of the organism but rather is encoded on this  
 dispensable plasmid. Furthermore, the enzyme is not an autolysin that is  
 essential for cell wall synthesis because strains lacking the  
 endopeptidase gene grew normally.

L4 ANSWER 19 OF 23 MEDLINE  
 AN 76025376 MEDLINE  
 DN 76025376 PubMed ID: 1176603  
 TI Virulence factors of biotypes of Staphylococcus epidermidis from clinical  
 sources.  
 AU Males B M; Rogers W A Jr; Parisi J T  
 SO JOURNAL OF CLINICAL MICROBIOLOGY, (1975 Mar) 1 (3) 256-61.  
 Journal code: 7505564. ISSN: 0095-1137.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 197512  
 ED Entered STN: 19900313  
 Last Updated on STN: 20000303  
 Entered Medline: 19751230  
 AB The biotyping scheme of Baird-Parker was applied to cultures of  
 Staphylococcus epidermidis from patients. In all, 63.6% of 228 cultures  
 belonged to biotype 1, followed by biotypes 4, 3, and 2 in decreasing  
 order of incidence. When classified according to clinical source of  
 isolation, cultures of S. epidermidis were most frequently isolated from  
 urine, with 39.5% of 228 cultures from this source. Each of the four  
 biotypes was distributed throughout all nine catagories of clinical  
 sources. The production of virulence factors was based on the results of  
 three groups of tests: (i) deoxyribonuclease, urease, gelatinase,  
 caseinase, and lysozyme production; (ii) lipolytic activity on the tweens;  
 and (iii) hemolysin production. Enzymatic activity was highest for  
 organisms in biotypes 1, followed by biotypes 3, 4, and 2 in decreasing

order. Of the 228 cultures, 76.3% were lysed by **lysostaphin**. **Resistance** to antibiotics was highest for tetracycline, ampicillin, and penicillin, with rates of 54.8, 69.3, and 81.6%, respectively. The role of *S. epidermidis* as an etiological agent was studied by analyzing the laboratory and clinical data of 80 patients selected at random with bacteriuric *S. epidermidis*. Organisms in biotype 1 were most commonly associated with urinary tract infection. The significance of certain biotypes of *S. epidermidis* as opportunistic pathogens among compromised hosts in a hospital environment is discussed.

L4 ANSWER 20 OF 23 CAPLUS COPYRIGHT 2002 ACS

AN 1974:563936 CAPLUS

DN 81:163936

TI Lack of correlation between methicillin resistance and susceptibility of *Staphylococcus aureus*

AU Chopra, I.; Lacey, R. W.

CS Med. Sch., Univ. Bristol, Bristol, UK

SO J. Gen. Microbiol. (1974), 82, Pt. 2, 419-20

CODEN: JGMIAN

DT Journal

LA English

AB The acquisition of methicillin [61-32-5] resistance by *Staphylococcus aureus* did not affect its susceptibility to lysis by lysostaphin. This was illustrated by comparing the rates of lysis by lysostaphin in pairs of strains that differed only by the possession of gene(s) for methicillin resistance.

L4 ANSWER 21 OF 23 CAPLUS COPYRIGHT 2002 ACS

AN 1968:425280 CAPLUS

DN 69:25280

TI Lysostaphin. I. Sensitivity of 355 *Staphylococcus aureus* strains of human origin to lysostaphin

AU Pulverer, G.

CS Univ. Koeln, Cologne, Ger.

SO Z. Med. Mikrobiol. Immunol. (1968), 154(1), 40-8

CODEN: ZMMIA3

DT Journal

LA German

AB The effect of lysostaphin at concns. between 5.0 and 0.037  $\mu\text{g./ml.}$  on 355 coagulase-pos. *S. aureus* strains of human origin in Difco medium no. 3 and an exposure time of 24 hrs. at 37.degree. was investigated. All strains were resistant to penicillin G (1.5 units), streptomycin (25  $\mu\text{g.}$ ), chloramphenicol (10  $\mu\text{g.}$ ), tetracycline (10  $\mu\text{g.}$ ), and erythromycin (10  $\mu\text{g.}$ ), and 39 were resistant to methicillin. Of the remainder, there were 300 nonepidemic and 16 epidemic strains. At a min. inhibitory concn. of 2.5  $\mu\text{g./ml.}$ , 1.25  $\mu\text{g./ml.}$ , 0.62  $\mu\text{g./ml.}$ , 0.31  $\mu\text{g./ml.}$ , 0.15  $\mu\text{g./ml.}$ , 0.075  $\mu\text{g./ml.}$  and 0.037  $\mu\text{g./ml.}$  there were 8, 44, 101, 103, 74, 23, and 2 strains affected, resp., while all strains were killed at a concn. of 5.0  $\mu\text{g./ml.}$  The mode of action of lysostaphin was not related to that of methicillin, since methicillin resistance was not correlated with **lysostaphin resistance**. There was also no correlation between lysostaphin sensitivity and phage group or egg yolk activity.

L4 ANSWER 22 OF 23 CAPLUS COPYRIGHT 2002 ACS

AN 1967:113232 CAPLUS

DN 66:113232

TI Lysostaphin: an enzymic approach to staphylococcal disease. I. In vitro studies

AU Schaffner, William; Melly, M. Ann; Hash, John H.; Koenig, M. Glenn

CS Sch. of Med., Vanderbilt Univ., Nashville, Tenn., USA

SO Yale J. Biol. Med. (1967), 39(4), 215-29

CODEN: YJBMAU

DT Journal

LA English  
 AB Lysostaphin (I) (70 .gamma./ml.) rapidly killed Staphylococcus aureus in vitro, unlike the penicillins. I maintained its activity in serum and after heating at 37.degree.. I was equally active against encapsulated and nonencapsulated staphylococcal strains; like penicillin, I was inactive against intracellular staphylococci. I-resistant staphylococci were isolated in vitro; these differed from the parent strain in colonial morphology, slower GROWTH RATES, increased penicillin sensitivity, and occasionally in diminished virulence for mice. Resistance may possibly relate to configurational alterations on the cell wall surface rather than to changes in its chem. composition. 24 references.

L4 ANSWER 23 OF 23 CAPLUS COPYRIGHT 2002 ACS  
 AN 1967:420242 CAPLUS  
 DN 67:20242  
 TI Experimental observations on staphylococcal disease  
 AU Rogers, David Elliott  
 CS Vanderbilt Univ., Nashville, Tenn., USA  
 SO Postepy Mikrobiol. (1965), 5(2), 279-96  
 CODEN: PMKMAV  
 DT Journal  
 LA English  
 AB This report points out the nature of the factors conferring staphylococci virulence, the reasons for the refractoriness of staphylococcal infections to treatment, and the role of humoral immunity in prevention of staphylococcal disease in man. Coagulase-pos. staphylococci isolated from human disease could be grown from human granulocytes after 4-5 hrs. of intracellular residence. Coagulase-neg. strains were rapidly destroyed under these circumstances. The survival of part of the microbial populations within the cells is an important attribute of virulent strains. When a penicillinsensitive staphylococcus is incorporated within human leukocytes the lethal effects of penicillin are blocked. Similar results were obtained using lysostaphin which is highly active against all strains of staphylococci tested. It was demonstrated that levels of bacteremia can be modified by manipulating leukocyte levels. Studies were reported of a strain of Staphylococcus which dissocd. into 2 colonial variants when incorporated in soft agar contg. plasma. One variant was virulent for mice when injected i.p. and grew in diffuse colonies. The other variant was virulent under similar conditions and grew in compact colonies. The diffuse variant was found to have a surface component which prevents phagocytosis. Studies with 12 different mouse virulent staphylococcal strains show that all have an antigenic capsule and require other factors for ingestion by leukocytes. Penicillin was without effect on staphylococci at population titers similar to those contained in abscesses. High titers and relatively sluggish metabolism of organisms in the abscess cavity may have an important bearing on the refractoriness of lesions to antimicrobial therapy.

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=> s lysostaphin (2a) resistant  
366 LYSOSTAPHIN  
135390 RESISTANT  
150 RESISTANTS  
135412 RESISTANT  
(RESISTANT OR RESISTANTS)  
L1 6 LYSOSTAPHIN (2A) RESISTANT

=> d bib,abs 1-6

L1 ANSWER 1 OF 6 MEDLINE  
AN 2002293213 IN-PROCESS  
DN 22013727 PubMed ID: 12019130  
TI Combinations of lysostaphin with beta-lactams are synergistic against oxacillin-resistant Staphylococcus epidermidis.  
AU Kiri Nandini; Archer Gordon; Climo Michael W  
CS Department of Medicine, Virginia Commonwealth University Health Science System, Richmond, Virginia 23249, USA.  
NC R-41HL60334 (NHLBI)  
SO ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, (2002 Jun) 46 (6) 2017-20.  
Journal code: 0315061. ISSN: 0066-4804.  
CY United States  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS IN-PROCESS; NONINDEXED; Priority Journals  
ED Entered STN: 20020530  
Last Updated on STN: 20020530  
AB Oxacillin-resistant Staphylococcus aureus is rapidly killed by the endopeptidase lysostaphin, and the addition of beta-lactam antibiotics provides synergistic killing. We investigated the possibility that beta-lactams given in combination with lysostaphin would improve the activity of **lysostaphin** against oxacillin-resistant Staphylococcus epidermidis (ORSE), which is normally less susceptible to lysostaphin. Checkerboard synergy testing was performed for lysostaphin given in combination with oxacillin against 10 ORSE isolates for which the lysostaphin MICs were > 0 or = 8 microg/ml. The fractional inhibitory concentration index ranged from 0.0234 to 0.2656, indicating synergy, which was confirmed in growth curve experiments. In the rabbit model of experimental aortic valve endocarditis using an ORSE strain, the combination of lysostaphin and nafcillin was as effective as vancomycin alone and significantly better than lysostaphin or nafcillin alone. We conclude that beta-lactam antibiotics given in combination with lysostaphin are synergistic against many strains of ORSE.

L1 ANSWER 2 OF 6 MEDLINE  
AN 2001435424 MEDLINE  
DN 21199336 PubMed ID: 11302806  
TI Mechanism and suppression of lysostaphin resistance in oxacillin-resistant Staphylococcus aureus.  
AU Climo M W; Ehlert K; Archer G L  
CS Department of Medicine, Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, Virginia 23249, USA.. Michael.Climo@med.va.gov

aureus mutant was successfully devised. Lysostaphin was sufficiently absorbed on the heat-killed mutant cells derived from S. aureus Cowan I and efficiently eluted by 3 M KSCN. Enzyme preparation obtained by a single procedure of the affinity purification was pure enough for practical use. The yield of the enzyme was 25 mg from 1 liter culture and recovery rate was 64%.

L1 ANSWER 4 OF 6 MEDLINE  
AN 91072619 MEDLINE  
DN 91072619 PubMed ID: 2254432  
TI Effect of BiTek agar on lysostaphin susceptibility of staphylococci.  
AU Langlois B E; Dawson K; Akers K  
CS Department of Animal Sciences, University of Kentucky, Lexington 40546-0215.  
SO JOURNAL OF CLINICAL MICROBIOLOGY, (1990 Nov) 28 (11) 2568-9.  
Journal code: 7505564. ISSN: 0095-1137.  
CY United States  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 199101  
ED Entered STN: 19910308  
Last Updated on STN: 20000303  
Entered Medline: 19910124

AB Staphylococci which were considered to be lysostaphin susceptible on P agar containing Bacto-Agar showed different degrees of resistance to lysostaphin when tested on P agar made with BiTek agar. As a result, lysostaphin-susceptible strains were misidentified as **lysostaphin-resistant** strains.

L1 ANSWER 5 OF 6 MEDLINE  
AN 86224542 MEDLINE  
DN 86224542 PubMed ID: 3519667  
TI Rapid lysostaphin test to differentiate Staphylococcus and Micrococcus species.  
AU Geary C; Stevens M  
SO JOURNAL OF CLINICAL MICROBIOLOGY, (1986 Jun) 23 (6) 1044-5.  
Journal code: 7505564. ISSN: 0095-1137.  
CY United States  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 198606  
ED Entered STN: 19900321  
Last Updated on STN: 20000303  
Entered Medline: 19860627

AB A rapid, simple lysostaphin lysis susceptibility test to differentiate the genera Staphylococcus and Micrococcus was evaluated. Of 181 strains from culture collections, 95 of 95 Staphylococcus strains were lysed, and 79 of 79 Micrococcus strains were not lysed. The seven Planococcus strains were resistant. Clinical isolates (890) were tested with lysostaphin and for the ability to produce acid from glycerol in the presence of erythromycin. Overall agreement between the methods was 99.2%. All clinical Micrococcus strains (43) were **resistant to lysostaphin**, and all clinical Staphylococcus strains (847) were susceptible. Seven of the Staphylococcus strains did not produce acid from glycerol in the presence of erythromycin. This lysostaphin test provides results in 2 h. It is easier to perform than previously described lysostaphin lysis methods. It is also more rapid and accurate than the glycerol-erythromycin test.

L1 ANSWER 6 OF 6 MEDLINE  
AN 77153627 MEDLINE  
DN 77153627 PubMed ID: 848206  
TI [Evaluation of phagocytosis of Staphylococcus aureus with the aid of

NC R-41HL60334 (NHLBI)  
 SO ANTIMICROBIAL AGENTS AND CHEMOTHERAPY, (2001 May) 45 (5) 1431-7.  
 Journal code: 0315061. ISSN: 0066-4804.  
 CY United States  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 200108  
 ED Entered STN: 20010806  
 Last Updated on STN: 20010806  
 Entered Medline: 20010802  
 AB The potential for the development of resistance in oxacillin-resistant *Staphylococcus aureus* (ORSA) to lysostaphin, a glycyglycine endopeptidase produced by *Staphylococcus simulans* biovar *staphylolyticus*, was examined in vitro and in an in vivo model of infection. Following in vitro exposure of ORSA to subinhibitory concentrations of **lysostaphin**, **lysostaphin-resistant** mutants were identified among all isolates examined. Resistance to lysostaphin was associated with a loss of resistance to beta-lactams and a change in the muropeptide interpeptide cross bridge from pentaglycine to a single glycine. Mutations in *femA*, the gene required for incorporation of the second and third glycines into the cross bridge, were found following PCR amplification and nucleotide sequence analysis. Complementation of **lysostaphin-resistant** mutants with pBBB31, which encodes *femA*, restored the phenotype of oxacillin resistance and lysostaphin susceptibility. Addition of beta-lactam antibiotics to lysostaphin in vitro prevented the development of **lysostaphin-resistant** mutants. In the rabbit model of experimental endocarditis, administration of a low dose of lysostaphin for 3 days led predictably to the appearance of **lysostaphin-resistant** ORSA mutants in vegetations. Coadministration of nafcillin with lysostaphin prevented the emergence of **lysostaphin-resistant** mutants and led to a mean reduction in aortic valve vegetation counts of 7.5 log(10) CFU/g compared to those for untreated controls and eliminated the isolation of **lysostaphin-resistant** mutants from aortic valve vegetations. Treatment with nafcillin and lysostaphin given alone led to mean reductions of 1.35 and 1.65 log(10) CFU/g respectively. In ORSA, resistance to lysostaphin was associated with mutations in *femA*, but resistance could be suppressed by the coadministration of beta-lactam antibiotics.

L1 ANSWER 3 OF 6 MEDLINE  
 AN 93233503 MEDLINE  
 DN 93233503 PubMed ID: 8474355  
 TI Efficient adsorption of lysostaphin on bacterial cells of **lysostaphin-resistant** *Staphylococcus aureus* mutant.  
 AU Sakurada J; Murai M; Zhiyun L; Usui A; Seki K; Kobayashi K; Sumi Y; Jitsukawa H; Masuda S  
 CS Department of Bacteriology, Jikei University School of Medicine, Tokyo, Japan.  
 SO MICROBIOLOGY AND IMMUNOLOGY, (1993) 37 (1) 29-34.  
 Journal code: 7703966. ISSN: 0385-5600.  
 CY Japan  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 199305  
 ED Entered STN: 19930604  
 Last Updated on STN: 20000303  
 Entered Medline: 19930520  
 AB A simple and efficient method for the purification of staphylolytic endopeptidase (lysostaphin) contained in culture supernatant of *Staphylococcus simulans* biovar *staphylolyticus* strain by adsorption of the enzyme on bacterial cells of **lysostaphin-resistant** S.

lysostaphin (author's transl)].

Auswertung der Phagozytose von Staphylokokken unter Verwendung von Lysostaphin.

AU Dorner I; Blobel H; Schaeg W

SO ZENTRALBLATT FUR BAKTERIOLOGIE, PARASITENKUNDE, INFEKTIONSKRANKHEITEN UND HYGIENE. ERSTE ABTEILUNG ORIGINALE. REIHE A: MEDIZINISCHE MIKROBIOLOGIE UND PARASITOLOGIE, (1977) 237 (2-3) 141-6.

Journal code: 0331570. ISSN: 0300-9688.

CY GERMANY, WEST: Germany, Federal Republic of

DT Journal; Article; (JOURNAL ARTICLE)

LA German

FS Priority Journals

EM 197705

ED Entered STN: 19900313

Last Updated on STN: 19900313

Entered Medline: 19770520

AB The Staphylococcus aureus strains HV 1 and K 807 were lyzed by lysostaphin. S. epidermis E 1 and staphylococci extracted with guanidinium chloride were **resistant** to **lysostaphin**-induced lysis. In the phagocytosis of S. aureus lysostaphin proved to be most useful for the differentiation between engulfed and extracellular staphylococci, particularly those attached to the surface of the polymorphonuclear granulocytes. It enabled a better recognition of the phagocytized staphylococci and therefore a more precise analysis of the phagocytosis experiments. A further improvement in the evaluation of phagocytosis was possible by the use of radioisotope labelling of staphylococci. This technique in combination with lysostaphin, might be useful for large-scale phagocytosis studies.